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ABSTRACT

Though a previous study examined the data for vocational-technical students provided by the National Longitudinal Study of the High School Class of 1972, it did not exhaust the possibilities for evaluation of the data. The current study concentrated on three specific areas of analysis: (1) educational characteristics of students and selected univariate explorations; (2) multivariate explorations distinguishing vocational-technical students from others; and (3) student vocational and educational plans and ambitions. Vocational-technical students could be distinguished from academic and general students in terms of their academic ability, socioeconomic status, exposure to various teaching techniques, financial barriers to higher education, the incidence of remedial instruction, and participation in federal programs, such as Neighborhood Youth Corps and the Cooperative Vocational Education Program. Vocational students also differed from general students in terms of alienation, focus on the work world, channeling, sex, and race. Ambitions and plans of males and females in differing curriculum subgroups conform to the expected response patterns commensurate with their educational and social backgrounds. (BW)

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The Vocational Re-Evaluation of the National Longitudinal Study of
the High School Class of 1972--Base-Year

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The Vocational Re-Evaluation of the National Longitudinal Study of
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During the Spring of 1972 a large-scale survey of the senior high school class (class of 1972) was conducted throughout the United States. The purpose of the survey was to gather base-year data as the first stage of a six to eight year (approximately) longitudinal study. Instrumentation for the base-year study was developed and field tried by the Research Triangle Institute, the sampling plan was designed by Westat, Incorporated, and the field work and construction of the computer data files were performed by Educational Testing Service. The first analyses and summaries of the data appeared in an eight-volume report titled, The Base-Year Survey of the National Longitudinal Study of the High School Class of 1972, by Hilton et al., 1973, under Contract Number OEC-O-72-0933, for the U.S. Office of Education.

These analyses and tabulations, while voluminous, barely began to explore the possibilities for meaningful analysis owing to the large quantity of data gathered. The current study, A Vocational Re-Evaluation of the Base-Year Survey of the High School Class of 1972, by Creech et al., 1974 under Contract Number OEC-O-73-6806, increases the depth of exploration somewhat, but also fails to exhaust the possibilities.

The current study was targeted into three specific areas of analysis. The areas of analysis have contents which might be described briefly as follows:

- 1) Educational characteristics of students and selected univariate explorations.
- 2) Multivariate explorations distinguishing vocational-technical students from others, and
- 3) Student vocational and educational plans and ambitions.

The sample design used for the collection of data was a two-stage stratified sample with different selection probabilities assigned to different students. Two-stage sampling presents a great administrative and cost advantage over many other forms of sampling but can sometimes produce imprecise results. Stratification can often produce highly precise results, however, so that the combination of the two methods hopefully gives something of the best of both worlds--high precision and low cost. Historically, the precision levels produced by such sample designs in an educational setting have been somewhat worse than that which would

result from a simple random sample (SRS) of the same number of students; the variances which result are often 10 percent to 20 percent larger than the corresponding SRS variance. This disadvantage was offset in the current study by the large number of students selected (17,726) which provided sufficient precision to allow very small effects to be detected.

Unequal selection probabilities present a complication to the interpretation of results. The proportion of students in the sample who possess some attribute bears little overt relationship to the proportion to be found in the population. In consequence, characteristics of the sample were seldom useful. This problem was overcome by adjusting sample data so as to yield estimates of population characteristics which then become the basis for discussion. Since subsample sizes are frequently so large as to render standard errors almost negligible, the emphasis on characteristics of the population produces a census-like impression of the study. On balance, such an impression is probably warranted, provided that one bears in mind that the study was not a census and that the instruments used for data collection sometimes contained low validity components.

Educational Characteristics of Students

The initial analyses of data indicated that minor but systematic biases were present since certain schools and students did not participate in the survey. In particular, small schools, often in the South, often in rural areas, tended not to participate. Nonparticipant students tended to be not academically oriented, had lower standing in their class, were more mobile, and more likely to have one or more learning disabilities. In the current study this type of analysis was continued to compare students who answered every necessary question (full participants) with students who improperly omitted one or more questions (partial participants). It was found that students who planned to work and to take vocational or technical courses during the year following high school had the lowest rate of full participation. Academic curriculum students tended to produce a high rate of full participation. Full participants also tended to stand higher in their class than did partial participants. Thus, partial participation seems somewhat similar to nonparticipation and, therefore, the bias effects should be additive, not compensatory. Both the earlier report and the current one found the amount of bias to be small in most circumstances; however, the accumulative effects of bias emphasize the need for care in analysis and interpretation.

The high school class of 1972 consisted of about three million persons, about 82 percent of them white, 9 1/2 percent of them black. The rest were from smaller minority groups. Subsample sizes were inadequate to do more with the smaller minorities, but it was found that, while the sexes were equally represented for whites, black males comprised only 45 percent of all blacks. About half of the white students were enrolled in academic curricula, which compares to a quarter of the black students. Close to half of the black students (44 percent) were enrolled in general curricula, which compares to 29 percent of all white students.

A set of six tests (vocabulary, picture-number, reading, letter groups, mathematics, and mosaic comparisons) were administered to the sample students. Generally, females slightly outperformed males, academic students outperformed other students, and blacks scored about a standard deviation below whites. Exceptions to this pattern include the fact that males slightly outperformed females in mathematics. The median class standing of females was substantially (17 percent) higher than that of males and that of vocational-technical students was about six percent higher than that of general students.

The socioeconomic status of these students was examined from a variety of viewpoints, with highly consistent results. The SES level of academic students was appreciably higher than that of general students who had, in turn, a slightly higher SES level than that of vocational-technical students. Blacks were found to have a markedly lower SES than whites.

Student participation in federal programs was examined for the following five programs:

- 1) Cooperative Vocational Education Program (Co-op)
- 2) High School Vocational Education Work-Study Program (Work-Study)
- 3) Neighborhood Youth Corps (NYC)
- 4) Talent Search
- 5) Upward Bound

Collectively, these programs enroll about 741,000 students--about 1/4 of the population. The Work-Study program was the largest, enrolling about 277,000 students--roughly 10 percent of the population. Talent Search and Upward Bound each enrolled less than two percent of the students. Participation rates in these programs were similar for the two sexes, but differed between races and among curricula. Vocational-technical students tended to be heavily enrolled in the Co-op and Work-Study programs (about 1/5 of all vocational-technical students were in each program). General and academic students were much less

likely to be found in these two programs. The Neighborhood Youth Corps enrolled about eight percent of the general and vocational-technical students and about four percent of the academic students. Blacks were over-represented in all five programs, compared to their incidence in the population. Nearly a third of all black students indicated their participation in the Neighborhood Youth Corps.

A composite measure of ability suggested that students in federal programs had somewhat higher ability scores than did students in the same curriculum who did not participate in federal programs. Self-reported grades did not reflect this advantage, and it was suggested that under-achievement might be a factor. Compared to their same-curriculum peers (nonparticipants in federal programs), the participant was more likely to feel that teachers were not as helpful as they might have been, that transportation to and from school was problematic, that parents were disinterested in their education, and that school facilities were substandard. On the other hand, they were more apt to feel that school counseling services were good and that the quality of teaching was adequate.

A number of significant differences were observed regarding the exposures of various types of students to various special teaching techniques. With the exception of student projects, laboratory work, and television lectures, sex differences were generally noted. Such differences might accrue to the different courses selected by males and females and/or to the relative verbal facility and interest of females compared to males. Curriculum differences were generally observed, usually in a reasonable relationship between the curriculum and the teaching technique. For example, field trips were frequently reported by vocational-technical students, seldom reported by academic students, and even less frequently reported by general students. Vocational-technical female students and general male students may tend to be comparatively underexposed to the diversity of teaching techniques available. Field trips, individualized instruction, teaching machines and computer assisted instruction, and TV lectures were infrequently employed techniques compared to lectures, student-centered discussions, project and labor work, and composition writing.

About 1/3 of the population, that is, about one million of these students, may be facing a financial barrier to their continued education. It was observed that relatively large numbers of students were ignorant of many potential

sources of financial aid. Moreover, there was a relationship between students use of financial aid sources and the frequency with which counselors recommended such sources. Because of such a relationship it was hypothesized that a student's ignorance of potential aid might, in itself, constitute a portion of the perception of a financial barrier. The hypothesis was tested separately for 12 combinations of students (3 curricular x 4 post-high school preference categories). The hypothesis was supported in all 12 instances, suggesting that student counseling should clearly emphasize kinds of financial aid and the administrative procedures necessary to their application.

The incidence of remedial instruction in reading and mathematics was examined within a number of subgroups of the population. The pattern of incidence was found to be the inverse of the achievement/ability test pattern mentioned above--remedial instruction was relatively more frequently provided to blacks than to whites, to general and vocational-technical students than to academic students, and to more males than females. Students in remedial courses showed serious weaknesses in test performance for all tests in the battery, and additionally showed a slightly lower SES level than that found in nonremedial students.

Differences between Vocational-Technical Students and Others

The vocational education literature is extremely limited with regard to specific characteristics of high school vocational students. Much of this literature presents a stereotypical view of the vocational student. He is described as one who has little academic ability and who either chooses or is assigned to vocational courses because he cannot compete with other students. One study suggests that the vocational student is exposed to school experiences which reinforce rather than dispel handicaps to achievements. The vocational student has been described as having a lower self-image than other students, having plans influenced more frequently by parents than by teachers and counselors, and indicating significant interest in attending college.

One of the reasons research on the characteristics of vocational students has been so limited is due to the diversity of high schools with regard to classifying students into academic, general, and vocational curricula. Many high schools make no distinction between their students regarding the three curricula. Although there is fair agreement on the courses most academic students take in high school, the distinction between general and vocational students and the distinction between general and academic students is not at all clear. There appears to be no adequate common definition of a "vocational

course" or a "general course." Even if such definitions were commonly accepted, how many vocational courses would a student have to take to be considered a vocational student? How many general courses would a student have to take to be considered a general student? In the study described in this summary, that lack of clarity in terms was demonstrated, and undoubtedly the vague notion of a general student played a role in obtaining the somewhat weak results for distinguishing general and vocational students.

The specific purpose of this study was to identify characteristics that distinguished high school vocational students from their academic and general program peers. Data from more than 150 Student Questionnaire items were analyzed in order to determine the distinguishing characteristics of vocational students.

After generating composites, identifying discriminating variables, and cross-validating those variables, two main conclusions were reached. First, academic students were found to be substantially higher in measured academic ability than were both general and vocational students. This relationship was found to be strong and reliable, holding for both sexes and black and white students. None of the remaining variables was found to distinguish academic students. Sixty independent variables were considered including self-esteem, control of environment, 12 personal values variables, 14 ratings of school quality, 12 influence variables, 7 plans variables, and 4 characteristic variables. General students' measured academic ability was only slightly higher than was vocational students' measured academically. This difference, however, was not significant.

Although the relationship was less reliable and much weaker than was the case in distinguishing academic students (undoubtedly a result influenced by the lack of clarity mentioned earlier) vocational students differed from general students primarily in terms of alienation, focus on the work world, channeling (a variable indicating that one is not given a choice in selecting a program of study), sex, and race. Typically, vocational students felt less alienated from high school and focused more on the work world than general students. Vocational students were given more choice of program offerings and were less frequently assigned to instructional programs than general students. Proportionally more women and white students were enrolled in vocational programs.

Vocational and Educational Plans and Ambitions

The assessment of the views of high school students, regarding their educational and vocational future, sought to improve the understanding of how personal, social, and educational influences might act to shape post-high school decisions. In an attempt to explain the complex role of a variety of family, personal, peer, and school characteristics, different analytical approaches were found to be applicable as a function of the particular questions being posed and the nature of the available information. Thus, with essentially descriptive, univariate analysis was deemed important initially to define specific educational and vocational objectives perceived by the student, the relative value or priority that he assigns to each, how he claims to arrive at those decisions, and how he is likely to apply them in his post-high school strivings. Prior evidence of the importance of sex differences in this regard and a serious research gap in knowledge of the extent to which curriculum group membership is reflected in the formulation of plans and ambitions--coupled with a strong assumption that curriculum differentiation and sex interact with one another--served to define the focus of the descriptive contrasts for the first section of this analysis.

From the results obtained it was apparent that ambitions and plans of males and females in differing curriculum subgroups (academic, general, vocational) conform to logical expected response patterns that are commensurate with their educational and social backgrounds and the expectations that those backgrounds would be likely to impose. The overall pattern is one of the academic student fitting an expected "mold" in his intentions and desires for the highest levels of educational and occupational attainment compared to those of the other curriculum groups. General curriculum students may be characterized as striving for comparatively higher levels than students enrolled in the vocational curriculum. In essence, the academic group is comprised of college-goers who arrive at that choice earlier, and who also hope for and expect the higher status, higher paying (i.e., professional-managerial) occupational positions. The level of educational ambitions that academic students hold for themselves are also much closer to their level of educational plans or intentions than those of their counterparts, a result that might be said to represent a greater degree of "reality" in matching future wishes to expected accomplishment. Interestingly, however, in the perceptions of their occupational future, the match in planning and level

of ambition is closer for the vocational curriculum students who, despite seeing themselves in lower social status occupations after high school, tend to hold job desires that are more in line with job expectations than those in the other curriculum programs.

In describing how they arrive at their educational and vocational decisions, students indicate that their own initiative serves as the primary basis for shaping those plans and ambitions. Parents and friends constitute the dominant external sources of such influence (in that order) and school personnel rank far behind in any perceived impact. Academic curriculum students and females are the ones who trust more to their own initiative and to those other-person, or external, sources. Such self-report findings at a descriptive level can be seen as reasonably supportive of conclusions drawn inferentially from correctional studies that have indicated a more central role for parents and peers than for the school or its personnel. In the case of peers, that influence might be said to stem from the students having friends whose dominant post-high school plans they perceive as largely similar to their own.

Specific types of future activities that students see for themselves, and their reasons for these decisions, reflect some of the sharpest sex and curriculum distinctions found. One such striking result is in the much greater stress that academic students place on the loftier "meaning" of any work they might seek, in the form of its importance and interest as well as its creative and socially beneficial character. By contrast, non-academic students stress the more "mundane" or immediately tangible benefits of a friendly and sociable work environment, steadiness of work, and an opportunity to make money. But, whatever their curriculum group membership, they all tend to agree on the primacy of job success in their lives and in wanting decision-making freedom in the jobs that they do finally obtain.

Females, as might be expected, show greater social orientation than males in viewing the work environment (e.g., jobs with greater social utility and the opportunity to help people are important) and in their longer-term lifetime ambitions which emphasize marriage and family as opposed to male emphases on occupational success and security. Males are also less discrepant in their level of occupational ambitions and plans, whereas females plan for comparatively lower occupational status positions than they aspire to.

Within those general findings, however, there were a number of sex by curriculum interaction effects that serve as important qualifiers to the overall conclusions. For example, the greater importance placed on marriage and family by females is derived almost entirely from those enrolled in the general and vocational curricula rather than from academically enrolled females. Similarly, the sharpest difference between males and females, with regard to the occupational aspirations and plans discrepancy, occurs for the academic group with academic females most discrepant in this respect (i.e., likely to wish for higher status jobs than they plan to obtain).